

Recovery Plan Action Status

Plan Name: Recovery Plan for Schiedea adamantis

Plan Status: Final

Plan Date: 02-Feb-94

Lead Agency: USFWS

Lead Office: Pacific Islands Fish And Wildlife Office

(1608)

(792-9400)

Species	Action Priority #	Action #	Action Description	Action Status	Est. Initiation Date	Est. Completion Date	Responsible Parties	Work Type	Labor Type	Action Comments
Diamond Head schiedea (Schiedea adamantis)	1	1111	Prevent fire from reaching population	Ongoing Current	Prior to FY 1995		U.S. Fish and Wildlife Service, Ecological Services Division, Hawaii Department of Land and Natural Resources, Honolulu Fire Department, Diamond Head State Park, Hawaii Army National Guard	Management: Habitat Maintenance and Manipulation	Contract, Internal Field Assistance, Internal Technical Assistance, Volunteer	This task is continual in the dry habitat where this species occurs.
Diamond Head schiedea (Schiedea adamantis)	1	1112	Reduce fuel load	Ongoing Current	Prior to FY 1995		U.S. Fish and Wildlife Service, Ecological Services Division, Hawaii Department of Land and Natural Resources, Diamond Head State Park, Hawaii Army National Guard	Management: Habitat Maintenance and Manipulation, Management: Predator and Competitor Control	Contract, Internal Field Assistance, Volunteer	This task is continual in the dry habitat where this species occurs.
Diamond Head schiedea (Schiedea adamantis)	1	1113	Consider alternative fire control methods	Complete	Prior to FY 1995	FY 1995 - FY 1999	U.S. Fish and Wildlife Service, Ecological Services Division, Hawaii Department of Land and Natural Resources, Honolulu Fire Department, Diamond Head State Park, Hawaii Army National Guard	Management: Habitat Maintenance and Manipulation	Contract, Graduate Student, Internal Administrative, Internal Field Assistance, Internal Technical Assistance, Species Expert, Volunteer	Alternative methods were considered and determined too costly.

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Diamond Head schiedea (Schiedea adamantis)	1	112	Develop fire response plan	Not Started			U.S. Fish and Wildlife Service, Ecological Services Division, Hawaii Department of Land and Natural Resources, Honolulu Fire Department, Diamond Head State Park, Hawaii Army National Guard	Management: Planning	Contract, Graduate Student, Internal Field Assistance, Internal Technical Assistance	
Diamond Head schiedea (Schiedea adamantis)	1	121	Determine effect of koa haole on Schiedea	Complete	FY 1995 - FY 1999	FY 1995 - FY 1999	U.S. Fish and Wildlife Service, Ecological Services Division, Hawaii Department of Land and Natural Resources, U.S. Geological Survey, Biological Resources Division	Research: Competition, Research: Management Techniques	Contract, Graduate Student, Internal Field Assistance, Internal Technical Assistance, Species Expert	Some koa haole was removed at the site of the wild individuals by the state, but detailed monitoring was not conducted to determine the results. In addition, survivorship was higher in sites where koa haole was removed prior to reintroduction that the control sites with no removal.
Diamond Head schiedea (Schiedea adamantis)	1	1221	Determine removal techniques outside of population	Complete	FY 1995 - FY 1999	FY 1995 - FY 1999	U.S. Fish and Wildlife Service, Ecological Services Division, Hawaii Department of Land and Natural Resources, U.S. Geological Survey, Biological Resources Division	Research: Competition, Research: Management Techniques	Contract, Graduate Student, Internal Field Assistance, Internal Technical Assistance, Species Expert, Volunteer	Some koa haole was removed at the site of the wild individuals by the state, but detailed monitoring was not conducted to determine the results. In addition, survivorship was higher in sites where koa haole was removed prior to reintroduction that the control sites with no removal.
Diamond Head schiedea (Schiedea adamantis)	1	1222	Test removal techniques within population	Ongoing Not Current	FY 1995 - FY 1999		U.S. Fish and Wildlife Service, Ecological Services Division, Hawaii Department of Land and Natural Resources, U.S. Geological Survey, Biological Resources Division	Research: Competition, Research: Management Techniques	Contract, Graduate Student, Internal Field Assistance, Internal Technical Assistance, Species Expert, Volunteer	Some koa haole was removed at the site of the wild individuals by the state, but detailed monitoring was not conducted to determine the results.

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Diamond Head schiedea (Schiedea adamantis)	1	123	Remove living koa haole	Ongoing Not Current	FY 1995 - FY 1999		U.S. Fish and Wildlife Service, Ecological Services Division, Hawaii Department of Land and Natural Resources	Management: Habitat Maintenance and Manipulation, Management: Predator and Competitor Control	Contract, Graduate Student, Internal Field Assistance, Volunteer	Some koa haole was removed at the site of the wild individuals by the state, but detailed monitoring was not conducted to determine the results.
Diamond Head schiedea (Schiedea adamantis)	1	13	Control human activities near Schiedea	Ongoing Current	FY 1995 - FY 1999		Hawaii Department of Land and Natural Resources, Diamond Head State Park, Hawaii Army National Guard	Management: Habitat Maintenance and Manipulation, Management: Other	Contract, Graduate Student, Internal Field Assistance, Internal Technical Assistance	Access to the site is limited because it is within the Hawaii Army National Guard lands, and hikers must have permission to get past a guard station to access the hiking trail that goes past the wild population.
Diamond Head schiedea (Schiedea adamantis)	1	14	Back-up current population	Complete	FY 1995 - FY 1999	FY 2000 - FY 2004	U.S. Fish and Wildlife Service, Ecological Services Division, University of California at Irvine, Hawaii Department of Land and Natural Resources, University of Hawaii CCRT Seed Storage Laboratory	Management: Propagation	Contract, Graduate Student, Internal Technical Assistance, Species Expert	UCI completed this task through controlled crosses of plants cultivated in their greenhouse. Although the seeds in storage are F1 generation, they are the best material available, since there are only 2 plants remaining in the wild. This task may need to be reinitiated if the viability of the seeds stored at the CCRT Seed Storage Lab declines.
Diamond Head schiedea (Schiedea adamantis)	2	211	Map and record location, habitat and competitors	Complete	FY 1995 - FY 1999	FY 1995 - FY 1999	U.S. Fish and Wildlife Service, Ecological Services Division, University of California at Irvine, Hawaii Department of Land and Natural Resources	Research: Population Surveys	Contract, Graduate Student, Internal Field Assistance, Species Expert, Volunteer	

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Diamond Head schiedea (Schiedea adamantis)	2	2121	Determine damage	Complete	FY 1995 - FY 1999	FY 1995 - FY 1999	U.S. Fish and Wildlife Service, Ecological Services Division, University of California at Irvine, Hawaii Department of Land and Natural Resources	Research: Competition, Research: Predation	Contract, Graduate Student, Internal Field Assistance, Internal Technical Assistance, Species Expert	
Diamond Head schiedea (Schiedea adamantis)	2	2122	Control damage if necessary	Not Started			U.S. Fish and Wildlife Service, Ecological Services Division, Hawaii Department of Land and Natural Resources	Management: Disease Control, Management: Predator and Competitor Control	Contract, Graduate Student, Internal Field Assistance, Species Expert, Volunteer	This task has not been needed, since no predators or disease have been noted. If any arise, this task will be reinitiated.
Diamond Head schiedea (Schiedea adamantis)	2	213	Collect Schiedea seed	Complete	FY 1995 - FY 1999	FY 1995 - FY 1999	U.S. Fish and Wildlife Service, Ecological Services Division, University of California at Irvine, Hawaii Department of Land and Natural Resources, University of Hawaii CCRT Seed Storage Laboratory	Management: Propagation	Contract, Graduate Student, Internal Technical Assistance, Species Expert, Volunteer	UCI completed this task through controlled crosses of plants cultivated in their greenhouse. Although the seeds in storage are F1 generation, they are the best material available, since there are only 2 plants remaining in the wild. This task may need to be reinitiated if the viability of the seeds stored at the CCRT Seed Storage Lab declines.
Diamond Head schiedea (Schiedea adamantis)	2	221	Determine pollinators	Not Started			Hawaii Department of Land and Natural Resources, U.S. Geological Survey, Biological Resources Division, U.S. Fish and Wildlife Service, Endangered Species Division	Research: Demographic Studies, Research: Other Information, Research: Population Surveys	Contract, Graduate Student, Internal Field Assistance, Species Expert	This task has not been started, and since so few plants remain in the wild, it may be difficult to ever determine the pollinators.

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Diamond Head schiedea (Schiedea adamantis)	2	222	Investigate seed production of females and hermaphrodites	Not Started			U.S. Fish and Wildlife Service, Ecological Services Division, University of California at Irvine, Hawaii Department of Land and Natural Resources, U.S. Geological Survey, Biological Resources Division	Research: Demographic Studies, Research: Population Surveys, Research: Propagation	Contract, Graduate Student, Internal Field Assistance, Internal Technical Assistance, Species Expert	This task was abandoned, because with so few individuals remaining in the wild, hand crosses of plants in the UCI greenhouse were conducted rather than relying on reproduction in the wild.
Diamond Head schiedea (Schiedea adamantis)	2	223	Determine genetic variability of Schiedea population	Complete	FY 1995 - FY 1999	FY 1995 - FY 1999	U.S. Fish and Wildlife Service, Ecological Services Division, University of California at Irvine, Hawaii Department of Land and Natural Resources	Research: Genetics	Contract, Graduate Student, Internal Technical Assistance, Species Expert	Inbreeding depression levels were found to be very high in this species.
Diamond Head schiedea (Schiedea adamantis)	2	23	Investigate germination and establishment techniques	Complete	FY 1995 - FY 1999	FY 1995 - FY 1999	U.S. Fish and Wildlife Service, Ecological Services Division, University of California at Irvine, Hawaii Department of Land and Natural Resources, U.S. Geological Survey, Biological Resources Division	Management: Propagation, Management: Reintroduction	Contract, Graduate Student, Internal Field Assistance, Internal Technical Assistance, Species Expert	The methodology for this has been determined by researchers at UCI and DLNR propagators.
Diamond Head schiedea (Schiedea adamantis)	2	31	Expand current populations	Ongoing Not Current	FY 1995 - FY 1999		U.S. Fish and Wildlife Service, Ecological Services Division, University of California at Irvine, Hawaii Department of Land and Natural Resources, Diamond Head State Park, Hawaii Army National Guard	Management: Reintroduction	Contract, Graduate Student, Internal Field Assistance, Species Expert	This task was attempted unsuccessfully in the 1990's. It is believed that it failed largely due to extreme drought conditions during those years. Additional reintroductions have survived, but may need augmentation to reach viable levels.

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Diamond Head schiedea (Schiedea adamantis)	2	321	Identify sites for new populations	Ongoing Not Current	FY 1995 - FY 1999	FY 2013	U.S. Fish and Wildlife Service, Ecological Services Division, University of California at Irvine, Hawaii Department of Land and Natural Resources, Diamond Head State Park, Hawaii Army National Guard	Acquisition: General, Management: Planning	Internal Administrative, Internal Technical Assistance, Species Expert	Several potential sites were selected and at some reintroduction was attempted but failed. Additional sites will be selected in the coming year.
Diamond Head schiedea (Schiedea adamantis)	2	322	Secure sites	Ongoing Not Current	FY 1995 - FY 1999		U.S. Fish and Wildlife Service, Ecological Services Division, Hawaii Department of Land and Natural Resources, Diamond Head State Park, Hawaii Army National Guard	Acquisition: General	Contract, Internal Administrative, Internal Technical Assistance	This task will be restarted when new sites are selected in the coming year.
Diamond Head schiedea (Schiedea adamantis)	2	323	Control threats to new populations	Ongoing Current	FY 1995 - FY 1999		U.S. Fish and Wildlife Service, Ecological Services Division, Hawaii Department of Land and Natural Resources	Management: Habitat Maintenance and Manipulation, Management: Predator and Competitor Control	Contract, Graduate Student, Internal Field Assistance, Species Expert, Volunteer	The Koko Head site is managed by Honolulu Botanical Gardens staff, and the Diamond Head site is managed by Hawaii Army National Guard.
Diamond Head schiedea (Schiedea adamantis)	2	324	Establish new populations	Ongoing Not Current	FY 1995 - FY 1999	FY 2014	U.S. Fish and Wildlife Service, Ecological Services Division, University of California at Irvine, Hawaii Department of Land and Natural Resources	Management: Reintroduction	Contract, Graduate Student, Internal Field Assistance, Species Expert, Volunteer	Outplanted populations did not survive, so additional sites will be selected this year and established next year.
Diamond Head schiedea (Schiedea adamantis)	2	33	Monitor new populations	Ongoing Not Current	FY 1995 - FY 1999		U.S. Fish and Wildlife Service, Ecological Services Division, Hawaii Department of Land and Natural Resources	Research: Demographic Studies, Research: Habitat Requirements, Research: Habitat Status, Research: Management Techniques, Research: Population Surveys, Research: Reintroduction	Contract, Graduate Student, Internal Field Assistance, Species Expert, Volunteer	

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Diamond Head schiedea (Schiedea adamantis)	3	41	Determine number of populations needed	Not Started			U.S. Fish and Wildlife Service, Ecological Services Division, Hawaii Department of Land and Natural Resources	Other: Regulations, Research: Demographic Studies, Research: Genetics, Research: Habitat Requirements, Research: Habitat Status, Research: Management Techniques, Research: Population Surveys, Research: Reintroduction	Contract, Graduate Student, Internal Field Assistance, Species Expert, Volunteer	
Diamond Head schiedea (Schiedea adamantis)	3	42	Determine number of individuals needed	Not Started			U.S. Fish and Wildlife Service, Ecological Services Division, Hawaii Department of Land and Natural Resources	Research: Competition, Research: Demographic Studies, Research: Genetics, Research: Habitat Requirements, Research: Habitat Status, Research: Management Techniques, Research: Population Surveys, Research: Predation, Research: Reintroduction	Contract, Internal Technical Assistance, Species Expert	
Diamond Head schiedea (Schiedea adamantis)	3	43	Revise recovery objectives	Not Started			U.S. Fish and Wildlife Service, Ecological Services Division	Other: Regulations, Research: Competition, Research: Demographic Studies, Research: Genetics, Research: Habitat Requirements, Research: Habitat Status, Research: Management Techniques, Research: Population Surveys, Research: Predation, Research: Reintroduction	Internal Technical Assistance, Species Expert	